

REMARKS

Claims 20-27 are all the claims pending in the application.

I. Amendments to the Claims and Specification

Claim 20 has been amended to better capture the envisioned commercial embodiments. Support for the claim amendments can be found throughout the specification and originally filed claims. Accordingly, no new matter has been introduced by way of these amendments.

The Office Action of the 1st February 2007 objected to the use of the word “selecting” (paragraph 40). Applicants respectfully point out that the word “selecting” was not used in the objected to portion of the application submitted by the Applicants. Rather, in the submitted application, the word “selectins” was used. Applicants refer the Examiner to the submitted specification, viewable *via* the Patent Application Information Retrieval (PAIR) system, which clearly uses the word “selectins”. Thus, the typographical error is a printing error on the part of the PTO.

II. The Claim Rejections under 35 U.S.C. § 112, second paragraph, are Moot

The Office Action of February 1st 2007 rejected claims 20-21 and 23-27 under 35 U.S.C. § 112, second paragraph, as allegedly “being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.” To better capture the envisioned commercial embodiments, Applicants have amended claim 20. Applicants assert that the amendments to claim 20 render moot the outstanding indefiniteness rejections. Applicants request reconsideration and withdrawal of this rejection.

III. Claim Rejections under 35 U.S.C. § 103(a)

To establish a *prima facie* case of obviousness, the references must teach each and every limitation of the currently claimed invention, *In re Royka*, 490 F.2d 981, 985 (C.C.P.A. 1974).

There must also be a reasonable expectation of success in combining the references, and this expectation of success must be found in the references as well. *In re Vaeck*, 947 F.2d 488, 493 (Fed. Cir. 1991). The Office Action of 1 February 2007 rejected claims 20-21 and 23-27 under 35 U.S.C. 103(a) as being unpatentable over Banes AJ (US Pat. 4,822,741, 04/18/1989) in view of Stitt et al. (US Pat 5,567,598, 10/22/1996). These rejections are respectfully traversed.

The Office action alleges that

Banes teaches a polyorganosiloxane composition for cell culture of mammalian cells having a biocompatible surface thereon, (page 2, right column lines 53-68) after treatment with a silane and further modifies to cover it with a peptide (RGDS) derived from the protein fibronectin, which is an extracellular cellular matrix adhesion molecule (Example 5 and claims 12-18).

Office Action of 1st February 2007, page 4.

Applicants respectfully disagree and assert that the 4-amino acid oligopeptide used by Banes cannot be considered an “extracellular matrix molecule” (claim 27). Applicants point out that the sequence “RGDS” is not restricted to extracellular matrix proteins, but rather, it can be readily found in the amino acid sequences of many eukaryotic and prokaryotic intracellular proteins, such as human adenylate cyclase type IX and glycine dehydrogenase from *Pseudomonas aeruginosa*. Although the Office Action alleges that Banes teaches “a peptide (RGDS) derived from the protein fibronectin, which is an extracellular matrix adhesion molecule”, Applicants could find no teaching in Banes that the RGDS sequence is derived from either fibronectin, or indeed, from any extracellular matrix protein. Thus, Banes fails to teach that the RGDS oligopeptide is, or even derives from, an extracellular matrix molecule. Accordingly, Banes fails to teach each and every element of the claims.

The Office Action further alleges that

It would have been obvious for a skilled artisan at the time that the invention was made to combine the compositions of Banes with the oxygen-sensing device of Stitt to obtain the device of the

invention with an excellent expectation of success. The Applicant would have been motivated to combine the two references to be able to ensure a lack of microbial contamination in the in the Banes apparatus via O₂ consumption, as taught by Stitt, prior to inoculating with mammalian cells. Accordingly, the invention as claimed is *prima facie* obvious.

Office Action of 1st February 2007, pages 4-5.

Applicants respectfully disagree and assert that the claimed invention cannot be rendered *prima facie* obvious by Banes and Stitt in view of the following remarks. First, as mentioned, Banes fails to teach that the RGDS oligopeptide is an extracellular matrix protein. The addition of Stitt is not sufficient to overcome the deficiencies in the primary reference, since Stitt makes no suggestion of using an RGDS oligopeptide or extracellular matrix protein. Thus, the combination of Banes and Stitt fails to teach each and every limitation of the claims. Accordingly, the currently claimed invention cannot be *prima facie* obvious.

Second, Applicants assert that one skilled in the art would not even try to combine the methods of Banes and Stitt to arrive at the claimed invention. Applicants assert that one skilled in the art would not look to Stitt to correct the deficiencies of Banes because the two references are from entirely different fields of research. The methods of Banes are concerned with the analysis of the metabolic activity of microorganisms whereas the methods of Stitt are concerned with analyzing the in vitro flexing of cell culture substrates. Further, the Office Action alleges that “[t]he Applicant would have been motivated to combine the two references to be able to ensure a lack of microbial contamination in the Banes apparatus via O₂ consumption, as taught by Stitt, prior to inoculating with mammalian cells.” *Office Action of 1st February 2007, page 4*. Applicants respectfully disagree and assert that the references themselves teach away from the Office Action’s reasoning. Indeed, Banes explicitly teaches that the plates, after peptide attachment, are “washed, dried, sterilized and wrapped.” (column 10, line 46) (emphasis added). The term sterilized in a microbiological sense is used to denote that an apparatus or substance is “free from live bacteria or other microorganisms.” *The American Heritage Dictionary of the*

English Language, 2000. The specification in Banes therefore precludes the possibility of the Banes apparatus having microbial contamination.

One skilled in the art of in vitro cell flexing analysis would also not introduce microbial contamination into the sterilized Banes apparatus “before inoculating with mammalian cells”, since one skilled in the art of in vitro cell culture would also be skilled in the art of aseptic technique. Aseptic technique during in vitro cell culture is well known in the art as a highly effective means to prevent microbial contamination and one skilled in the art would likely use autoclaved or filter sterilized reagents in order to avoid microbial contamination. Thus, one skilled in the art of in vitro cell flexing would also be skilled in the art of maintaining microbe-free culture, and would therefore have no need to design a costly, time-consuming and elaborate method for detecting microbial contamination in view of the effective techniques for preventing and detecting microbial contamination already well known in the art.

Third, Stitt prepared the oxygen sensor apparatus out of a desire to reduce detection time. Applicants assert that one skilled in the art of in vitro cell flexing analysis would not develop a considerably more expensive, and considerably less sensitive, method for ensuring a lack of microbial contamination, simply to reduce detection time. Existing methods for the detection of microbial contamination, such as limiting dilution analysis using nutrient broth, would be more sensitive by several orders of magnitude, and also significantly more affordable. As the combination of Banes and Stitt fails to disclose each and every element of the claimed invention, and since there would be no reason to combine these references, one skilled in the art would not even attempt to arrive at the claimed invention with any reasonable expectation of success by combining these references. Thus, the combination of Banes and Stitt cannot possibly render the claimed invention obvious. Accordingly, Applicants respectfully request withdrawal of the remaining obviousness rejections.

IV. Conclusion

Claims 20-21 and 26-27 have been amended, and no new matter has been introduced by way of these amendments. Applicants respectfully request withdrawal of the remaining obviousness rejections.

Should the Examiner believe that further discussion of any remaining issues would advance the prosecution, he or she is invited to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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